

Finishing School Program (Online Internship)-2021

Name of Department	Department of Electronics Engineering
Module Name	Control & Automation
Module Coordinators	1)Dr. Rahul Dubey 2)Dr. Vikas Mahor 3)Prof. Rishabh Shukla 4)Prof. Deepak Batham
Module Objective	Robotics is an interdisciplinary domain which effectively involves electronics. The objective of this online internship is to give the basic idea about designing and functioning of basic industrial robots and application of microcontroller programming for a robot. The software is designed by researcher of IIT Delhi to help students in the designing of DH parameter, degree of freedom for a Robot.
Module Content	Introduction to Robotics, Designing of Controller, Robot Dynamics, Degree of Freedom, Hands on Session on Robo-Analyzer Software, Embedded System for Robotic design, Hands-on session on EdSim51 simulation software
Module Methodology	The module will start with various aspects of robotic design such as controller designing, robot dynamics, embedded system employed in robotic designing and PLC technology. Further, Various hands-on session is scheduled on various freeware software used in robotic and automated designs such as: RoboAnalyzr, TinkerCAD and edSim51.
Module Outcome/ Impact	<ol style="list-style-type: none">1. Understand the basics of Robotics and Automation in the context using Robotic products.2. Understand the various skills for robotic and automated system design.3. Understanding the process configurations and their realization of given automated system.4. Able to design and simulate automated systems and robots.
Duration	3 Weeks

MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

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Day Wise Schedule

Week	Date	Day	Module Contents to be covered/Interactive Session/Assignment/Quiz/Exercises/Daily practice sheets (DPP)/Tutorial/Project etc (10:00 AM onward, 4 Hrs/ Day)	Faculty
Week 1	14/05/2021	Fri	Robotics: Definitions & History	All Faculties
	15/05/2021	Sat	Introduction to controller for Robots	Prof Deepak Batham
	17/05/2021	Mon	Designing of Controller-Part I	Prof Deepak Batham
	18/05/2021	Tue	Designing of Controller-Part II	Prof Deepak Batham
	19/05/2021	Wed	Spatial Transformation Calculation of Degree of Freedom	Prof Rishabh Shukla
Week 2	20/05/2021	Thu	Introduction to DH Parameters	Prof Rishabh Shukla
	21/05/2021	Fri	Introduction to Forward Kinematics	Dr Rahul Dubey
	22/05/2021	Sat	Introduction to Inverse Kinematics	Dr Rahul Dubey
	24/05/2021	Mon	Introduction to Robot Dynamics	Prof Rishabh Shukla
	25/05/2021	Tue	Hands on Session on Homogeneous Transformation using RoboAnalyzer	Dr Rahul Dubey
Week 3	26/05/2021	Wed	Introduction to Embedded System, Applications of Embedded System	Dr Vikas Mahor
	27/05/2021	Thu	Using 8051 as a microcontroller in an embedded system. Introduction to the concepts of 8051 Microcontroller, Pin architecture and Programs for 8051 Micro controller.	Dr Vikas Mahor
	28/05/2021	Fri	Introduction to 8051 simulator. EdSim51 Installation of the software and simulating the first program.	Dr Vikas Mahor
	29/05/2021	Sun	Hands-on session I on EdSim51	Dr Vikas Mahor
	31/05/2021	Mon	Assessment Concluding Remarks by all Faculties	All faculties
	Module Coordinators Email Id and Mobile Number			1)Dr. Rahul Dubey (rahul@mitsgwalior.in, 9165577117) 2)Dr. Vikas Mahor (vikas@mitsgwalior.in, 73548 77010) 3)Prof. Rishabh Shukla (rishabh@mitsgwalior.in 8140427346) 4)Prof. Deepak Batham (dbatham@mitsgwalior.in 97553 95903)

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Eligibility and Important Instructions:-

- 1.** The Online Finishing School Program (Online training/Internship) is designed only for Pre-final & Final Year students of any Department.
- 2.** The students may apply online.
- 3.** The Online Finishing School Program/ Summer Internship Program is free for the participants of Pre-final & Final year students of MITS, Gwalior.
- 4.** The participants outside the Institute may also join the Program on payment basis.
- 5.** This online module will be conducted under the Finishing School Program which will be considered equivalent to Online Internship of Pre-final year students who could not get any Internship during this situation.